Healthy Yards for Rural Homes

Help Protect Our Local Waterways

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

Nanticoke Watershed Alliance

The Nanticoke River Watershed

The Chesapeake Bay is the nation's largest estuary. An **estuary** is a mix of fresh and saltwater, which creates a unique habitat for many creatures that can't live anywhere else. The Nanticoke River is the largest tributary that flows into the Bay in Lower Delaware, as well as one of the cleanest rivers to flow into the Bay.

The Nanticoke River has the most biologically diverse watershed on Delmarva. A **watershed** is all the land area that drains into a particular body of water. When it rains, gravity pulls water downhill into the lowest areas, usually streams, rivers, or ditches, which then flow into a larger body of water and eventually the ocean. This is how pollutants enter the ocean. Everyone lives in a watershed, and that is why it is important for us to remember that anything we do to the land will have an impact on local waterways.

Through its habitat, waterways, and the natural resources it supports, the Nanticoke River provides many natural and economic benefits for Maryland and Delaware. With all the resources the Nanticoke River gives us, it is important that we respect it and do what we can to keep it healthy. That starts with stopping pollution before it can reach our waterways and finding ways to support local wildlife and plant life. This guide gives rural homeowners different options to make their land more Bay-friendly.

MAP OF THE NANTICOKE RIVER WATERSHED

How Does Rainwater Get Polluted?

As rain or melting snow drains off of the land, it picks up pollutants such as trash, leaked engine fluids, pet waste, and lawn fertilizers. Even a small amount of rain can cause these pollutants to be picked up and carried into storm drains or directly into waterways. This polluted water is called **stormwater runoff**. Stormwater runoff can cause many different problems for our local environment and waterways, including:

Pollution

As rain or snow travels across rooftops, driveways, lawns, sidewalks, and streets, it picks up numerous contaminants. Eventually, this dirty water finds its way to local creeks and rivers, causing harm to fish and other wildlife.

Local Flooding

When the ground can't absorb water, storm drains and roadside ditches fill up too quickly with excess runoff, and flash flooding can occur in streets and other places. This can cause damage to homes, businesses, and natural spaces like creeks and river banks.

Human Health Impacts

Stormwater runoff can carry toxic metals, bacteria, viruses, and sometimes untreated sewage. This pollution drains directly into the Nanticoke River and Chesapeake Bay, which makes it costlier for downstream communities to clean.

Threats to Wildlife

As stormwater overflows and empties into streams and rivers, unnaturally high volumes of rushing water can wear away the stream bottom and cause stream bank erosion. Combined with the impact of pollutants, this water damages natural wildlife habitats and degrades drinking water quality, making it costlier to treat.

Use Native Plants

Plants are a vital part of the ecosystem. They are the only organisms on earth that can absorb the sun's energy and turn it into food, making them a critical part of the food chain. Humans love the beauty of plants, especially those that flower, but a crepe myrtle is originally from the other side of the world, not Delmarva. These plants are unique, but they cannot support the same type of ecosystem that native plants can.

Native plants provide a rich habitat for important local wildlife like pollinators and birds. Pollinators, like butterflies and bees, help humans grow many foods, like fruits, vegetables, and nuts. Here, on Delmarva, pollinators are important to many family farms and they keep our beautiful home gardens alive and well. Birds are great to watch in your yard; they provide a wonderful soundtrack to any lazy day, and they may even reduce the number of mosquitoes you run into.

Native plants offer benefits that non-native plants do not, such as:

- reduce erosion,
- provide habitat and food for local organisms,
- conserve water,
- require less chemicals, and can even
- reduce the amount of lawn mowing!

There are many native plants that you can use to replace non-natives or annuals in your yard. Next time you visit your local nursery, ask them to show you their native plant selection.

Monarch butterflies are beautiful, but they cannot survive without native plants. Their larvae can only eat one type of plant: milkweed. Fortunately, several types of milkweed are native to this area. This phenomenon is true for many types of insects, so a wide variety of native plants is the best way to help the environment.

Native Plant Tips

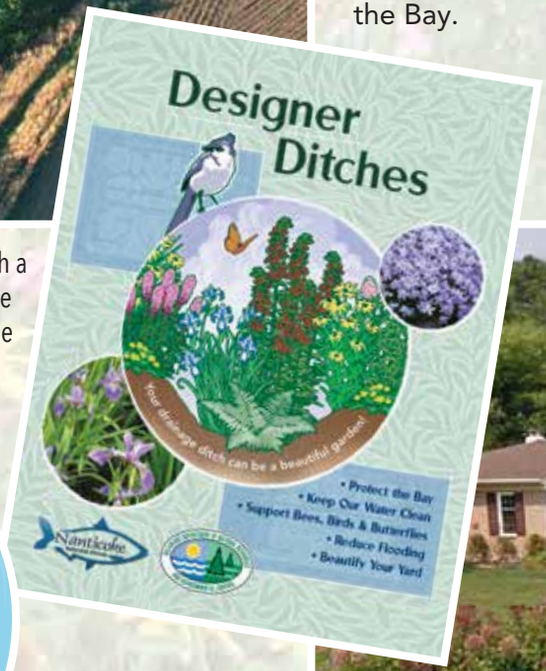
- **SUPPORT INCREDIBLE JOURNEYS –** Nearly 90 million birds migrate over this area each year. Support their journey by providing food and shelter with native plants.
- **DON'T FORGET THE CANOPY –** Native plants don't just include flowers; you can find native trees and shrubs at a nursery near you.
- **ADD VALUE –** A beautiful native garden or a patch of native trees could increase your property value.
- **REDUCE YOUR FOOTPRINT –** Large, native trees can absorb a lot of carbon from the atmosphere, helping to reduce your carbon footprint.

Designer Ditches & Stream Buffers

This creek has been planted with a vegetative buffer. Notice that the farmed fields do not go up to the edge of the water.

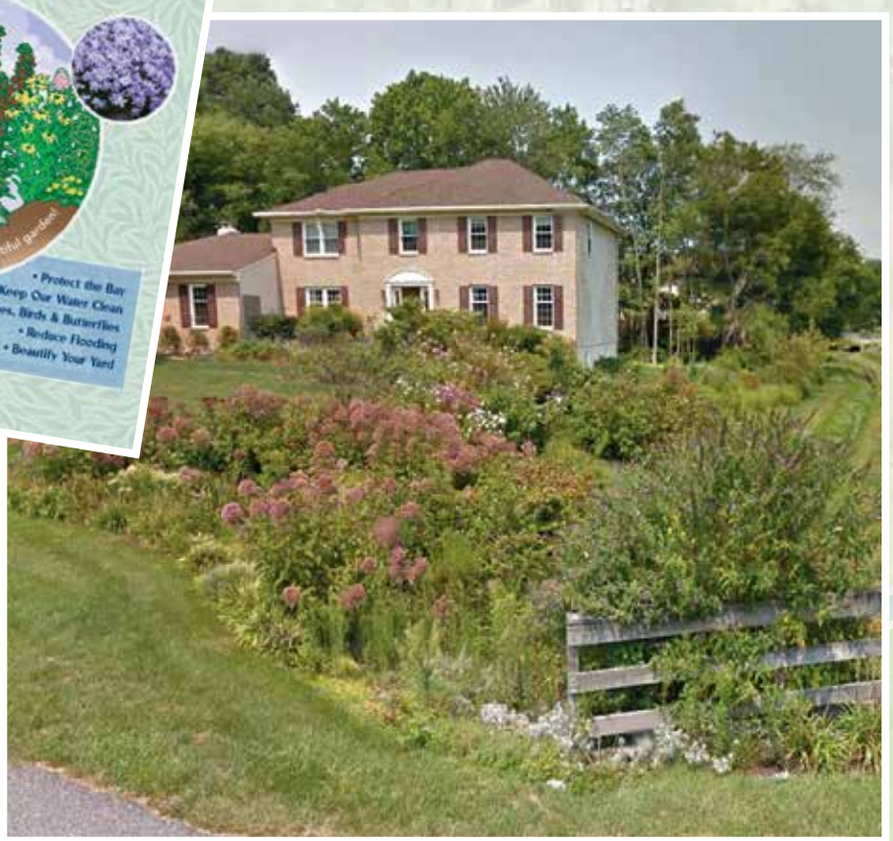
Why are ditches and stream buffers important?

On the low-lying Delmarva Peninsula, we have no shortage of ditches, which can be seen along roadsides, farm fields, and neighborhoods. These ditches work as wet weather streams, funneling excess water into waterways and preventing flooding. But in order to do their job, these ditches need to be maintained. If a ditch is sprayed with herbicides or scalped with a weed whacker, there are no plants to keep the soil in place. This causes the banks to erode. The loose soil is carried off into local waterways, like the Nanticoke River, then into the Chesapeake Bay. For fish, soil in the waterways is similar to smoke in the air for humans. The dirty water also smothers important Bay grasses and oyster beds. We can prevent this by planting native plants in and along the sides of existing ditches. The plants act as a buffer which will absorb and filter nutrients, pesticides, and animal waste from runoff, stabilize banks, and filter runoff before they reach the Bay.



Check out our in-depth design guide online at *NanticokeRiver.org/restoration/ditches/*

Both ditches and streams convey water during rainy days. Ditches are man-made but just as important in controlling flooding and providing habitat.



This ditch is now the home of many native plants. These plants create a beautiful habitat and filter out stormwater pollution.

Wildflower Meadows

Why should you consider turning your lawn into meadow?

Traditional lawns take a lot of time and money to maintain, but they have limited environmental benefits. There are many ways to make your lawn more environmentally friendly, one of which is to turn part of your lawn into a **wildflower meadow**. Wildflower meadows are complex, interactive communities of plants that provide essential ecosystem services.

Wildflower meadows are valuable habitat, providing pollen, nectar, and seed resources, nesting sites, and a protected environment for our native bee and butterfly species. Additionally, many birds, bats, and small mammals thrive on the food and shelter that wildflower meadows provide. Meadows also aid in the infiltration and filtration of stormwater, prevent erosion, and store carbon.

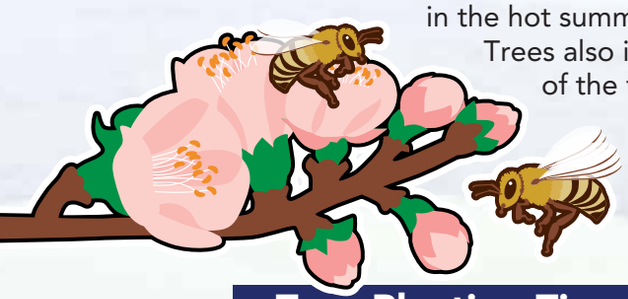
How to Start the Transition from Lawn to Meadow

- **SELECTING A PLANTING SITE –** When choosing a site for your meadow, avoid areas where water puddles or pools after a rain. Also consider areas that are difficult to mow.
- **PREPARE YOUR PLANTING AREA –** To start the transition from lawn to meadow, start by removing existing vegetation. If the area is lawn, strip the sod by hand or with a rented machine like a sod-cutter. It is important to remove or kill grass and other plants that would compete with the germinating wildflower seeds for light, water, and nutrients. Next, loosen the top few inches of soil with a tiller or by hand to create an ideal environment for the wildflower seeds to germinate. You will need to till or turn the soil two to three times to exhaust seed banks before the site is ready to be seeded. Lastly, rake the area flat to prepare the soil for sowing.
- **SEEDING –** Choose a native/regional wildflower seed mix.
- **SOWING THE SEED –** Choose a windless day to begin seeding. Place half your seeds in a bucket or hand-crank seeder. Begin to evenly scatter the seeds by walking back and forth in roughly parallel rows, doing your best to portion this half of the seed evenly over the whole planting area. Repeat this process with the remaining half of seed. After you're done seeding, begin compressing the seed onto the soil surface. This can be done by walking over the area or renting a lawn roller.
- **MAINTENANCE –** The first year, mow three to four times, setting the mower to a height of 6". This will cut down weedy species, while allowing natives, which tend to put first-year energy into roots, to thrive. After that, mow your meadow once or twice a year, preferably once in the spring. This prevents shrubs and trees from colonizing the area, while giving pollinators time to emerge from their winter homes. Keep an eye open for invasive plant species, and remove them as you find them.

If you don't want to dedicate a large portion of lawn to meadow, try planting a **pocket meadow**. For a pocket meadow you can use plugs rather than a seed mix. In early spring, choose your planting site, then mow the area with the blades on the lowest setting. Then, cover the area with black plastic or cardboard and keep covered through the summer. In the fall, you can plant your plugs, but be sure to use native plants!

Reforest / Plant More Trees

Trees are invaluable resources and are important to both the environment and human well-being. Planting more trees around your home can lower air temperatures and shade your home in the hot summer months, saving you money. Trees also improve water quality; the roots of the trees help stabilize soil, which reduces erosion. They also limit the amount of runoff that flows into streams and rivers.



In one day, one large tree can lift up to 100 gallons of water out of the ground and discharge it into the air.*

Source: http://www.ncsu.edu/project/treesofstrength/treefact.htm

Tree Planting Tips:

- **PICK THE RIGHT TREE –** Plant only native trees that will not get too large for the space you have chosen for them. These trees will thrive in our environment.
- **GIVE YOUR TREES A GOOD START –** Be sure to water young trees regularly to help establish a good root system.
- **HELP ENHANCE DIVERSITY –** Select several different types of trees to create a better habitat to attract a variety of birds. A variety of trees will also mean a beautiful array of fall colors, blooming times, and fruits!
- **GET MORE PRIVACY –** Instead of a fence, plant a row of smaller trees. These trees will offer privacy while reducing wind, noise, and pollution, as well as providing shade in the summer.

Recommended Trees for the Delmarva Peninsula:

*** flowers ° fall colors**

SMALL TREES – Under 30'
American Hornbeam – *Carpinus caroliniana* °
Fringetree – *Chionanthus virginicus* *°
Dogwood – *Cornus florida* *°
Redbud – *Cercis canadensis* *°
Serviceberry – *Amelanchier arborea* *°

MEDIUM TREES – 31-60'
Black Birch – *Betula lenta*
Blackgum – *Nyssa sylvatica* °
Honeylocust (thornless) – *Gleditsia triacanthos*
Persimmon – *Diospyros virginiana* *
Post Oak – *Quercus stellata*
Sassafras – *Sassafras albidum* *°
Sweetbay Magnolia – *Magnolia virginiana* *°
Willow Oak – *Quercus phellos* °

Source: https://delawaretrees.com/publications/recommended-trees/

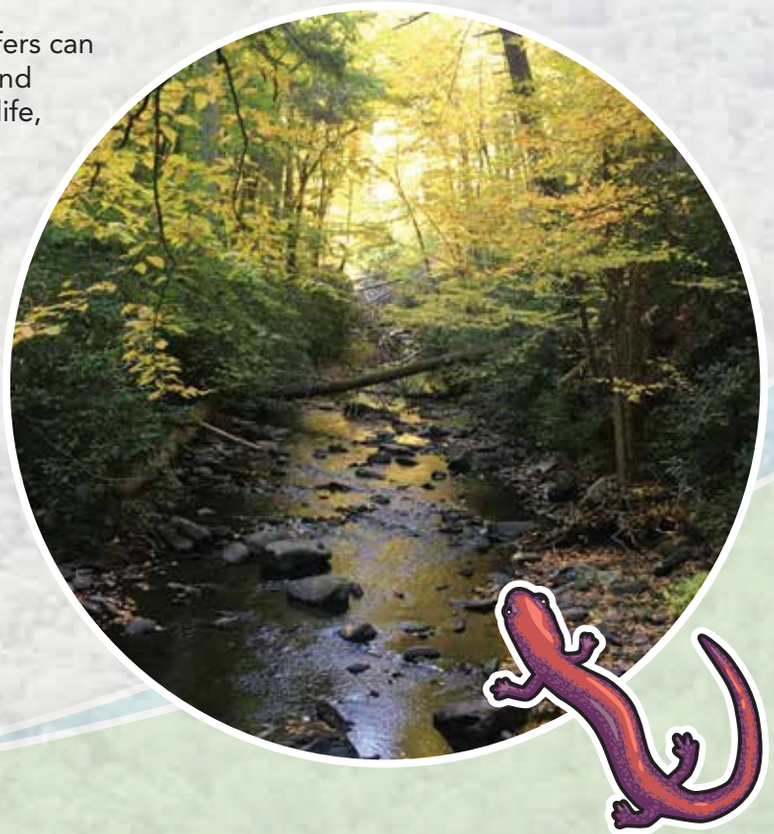
LARGE TREES – Over 61'
Basswood – *Tilia americana* °
Beech – *Fagus grandifolia* *°
Buckeye – *Aesculus glabra*
Chestnut Oak – *Quercus prinus* °
Hackberry – *Celtis occidentalis* °
Shagbark Hickory – *Carya ovata* °
Kentucky Coffeetree – *Gymnocladus dioicus* °
Pecan – *Carya illinoinensis*
Red Maple – *Acer rubrum* °
River Birch – *Betula nigra* °
Silver Maple – *Acer saccharinum* °
Sugar Maple – *Acer saccharum* °
Tulip Poplar – *Liriodendron tulipifera*
White Oak – *Quercus alba* °

EVERGREENS – 15-60'
American Holly – *Ilex opaca*
Eastern Red Cedar – *Juniperus virginiana*
White Pine – *Pinus strobus*
Loblolly Pine – *Pinus taeda*

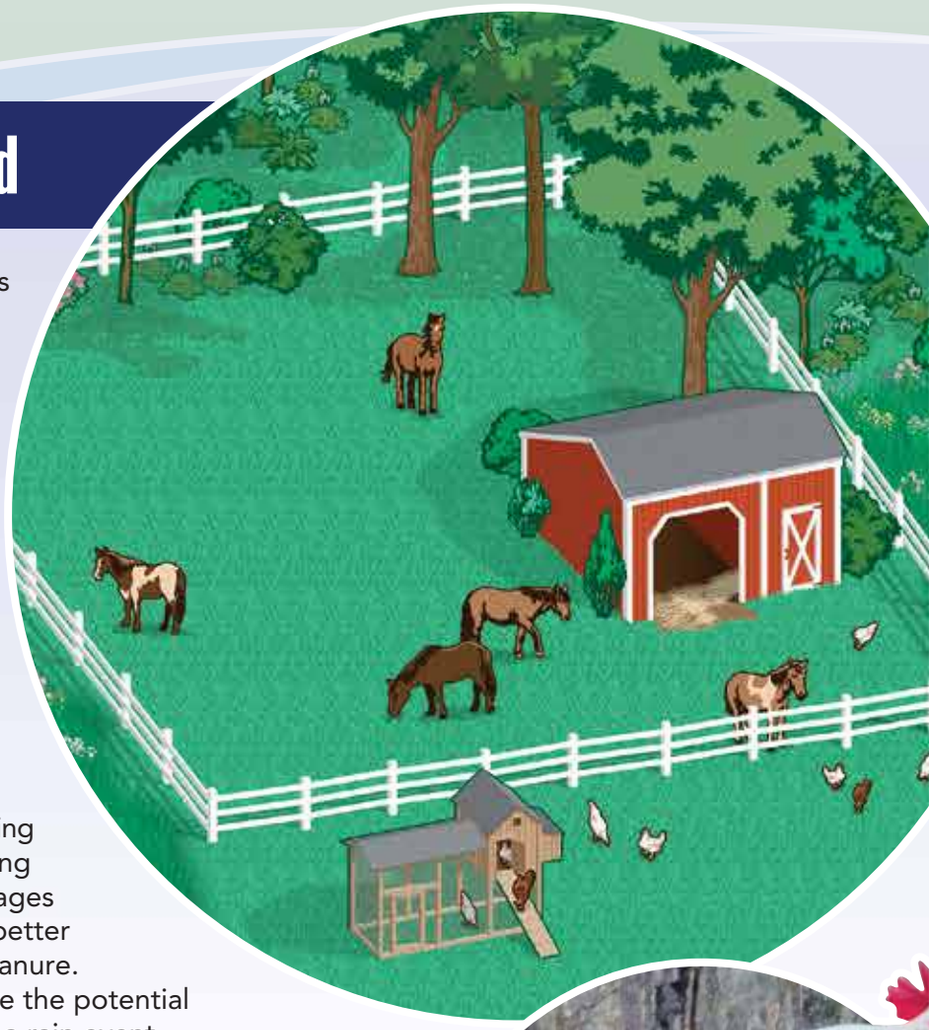
Do you have a creek, stream, or river on your property?

Consider planting a forest buffer along the sides of the waterway. They have many benefits including:

- **Improved Water Quality –** Woody plants and their roots help reduce streambank erosion, trap erosion sediments, increase water infiltration, and absorb excess nutrients, pesticides, and other contaminants.
- **Reduced Flood Damage –** Woody buffers reduce floodwater velocity and erosive power and block stream debris from entering cropland, grassland, and urban lands. Roots hold stream banks and keep the soil in place. Buffers reduce peak storm flows by slowing surface runoff.
- **Increased Wildlife –** Woody plants in buffers can create habitat diversity, shade streams, and increase food for songbirds and other wildlife, including salamanders and pollinators. This increase provides opportunities for recreational uses, such as hunting, fishing, bird watching, kayaking, and hiking. These shade trees keep water cooler providing better habitat for fish.

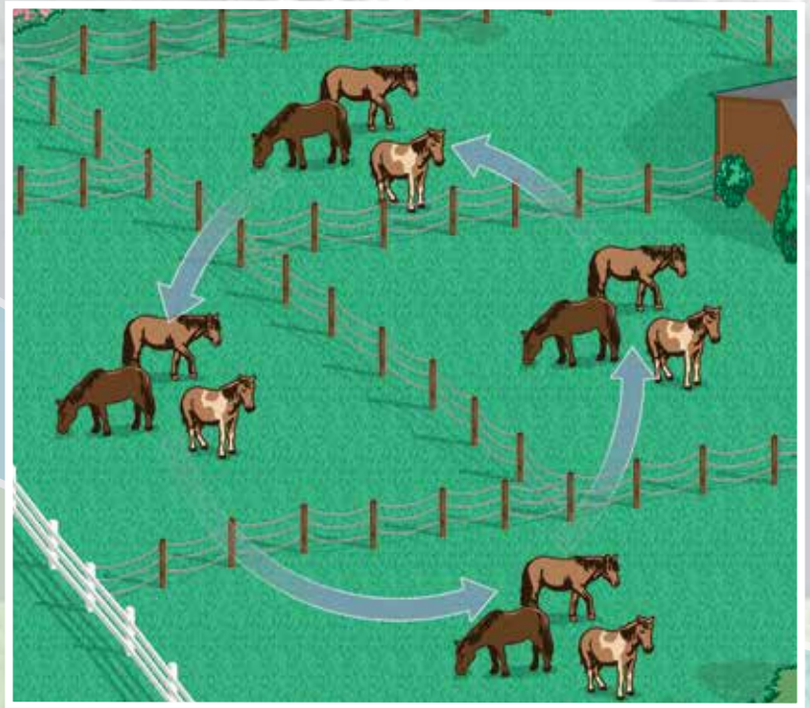


Critters in the Yard



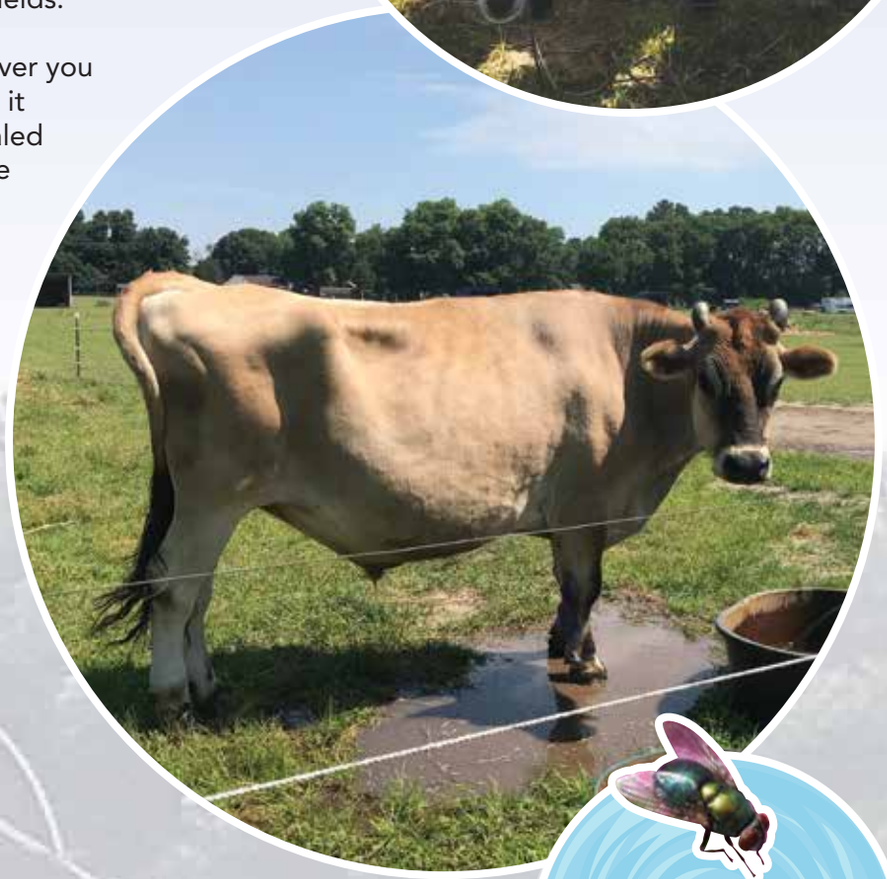
Managing manure on small farms is just as important as on large farms. Odors and flies can become bothersome for you and your neighbors, and large manure piles can be unsightly. Additionally, runoff containing manure after a rain can cause serious water quality issues for creeks, wetlands, and drinking water.

- **On-Pasture Manure Management –** This type of manure management is the most low-maintenance and works best with a smaller number of animals. This method focuses on keeping animals in a well-maintained pasture by rotating animals in several different pastures or constructing temporary fencing and moving the animals to a new grazing area. By moving the animals, it encourages the vegetation to grow in denser and better utilize the nutrients contained in the manure. The dense vegetation also helps reduce the potential of manure runoff in the pasture during a rain event. Farm animals should be kept out of waterways.

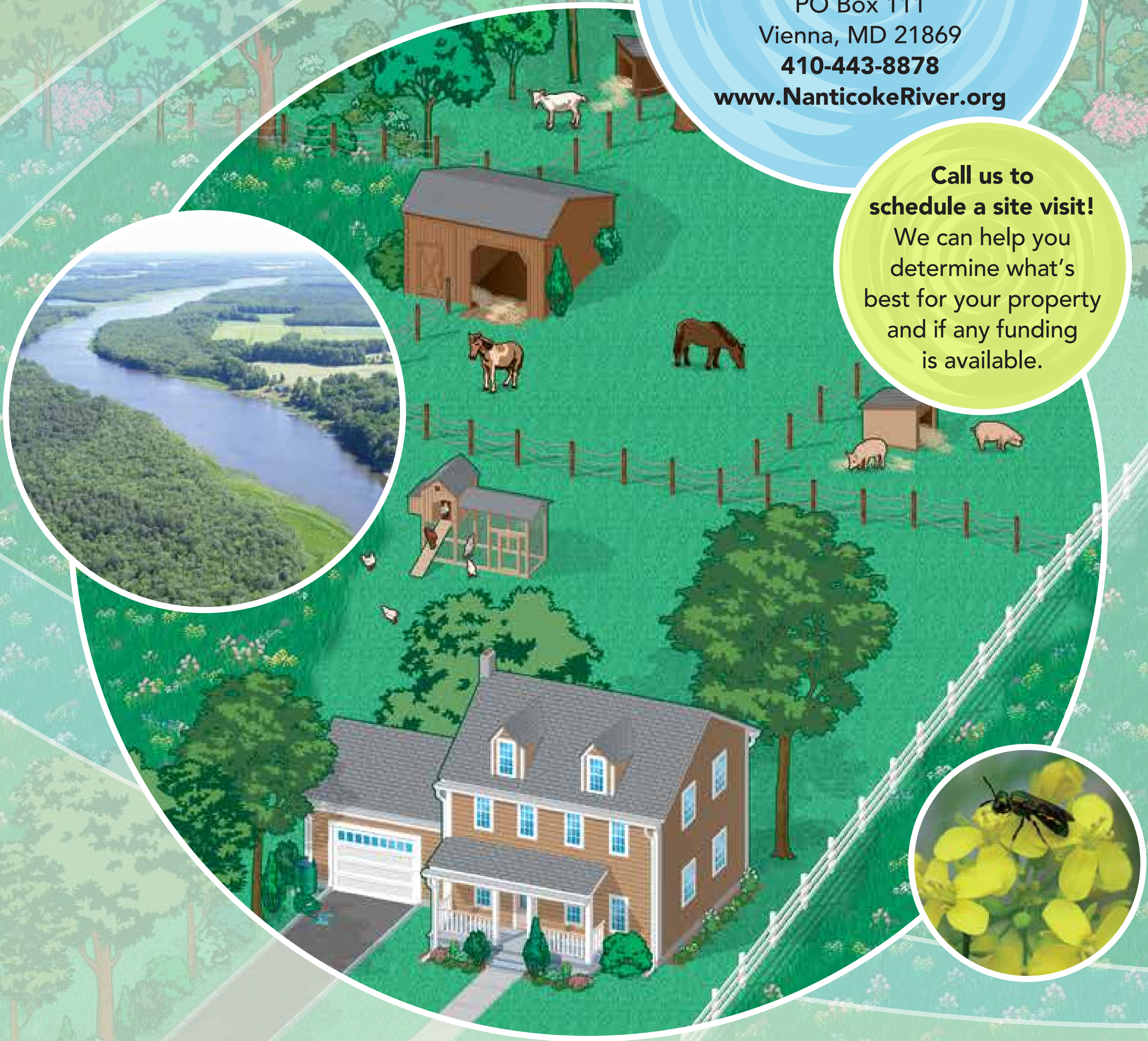


- **Composting –** Start by piling manure in a contained area where it cannot be carried into waterways via runoff after a rain. Mix the manure in equal parts with something green (grass clippings or food waste) and something brown (leaves or straw), unless your manure is already mixed with a lot of barn straw or sawdust. The next step is to add air and water. This means you should keep the manure moist or the microbes will die. The pile also needs to be turned periodically. After six to nine months your manure compost should be ready to spread on your gardens or fields.

- **Manure Storage –** Where ever you chose to store your manure, it must be compacted and sealed so that rainfall landing on the pile does not leach pollutants into the soil and groundwater.



Did you know that one horse can produce 50 pounds of manure in just one day?



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Call us to schedule a site visit! We can help you determine what's best for your property and if any funding is available.

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